Focus Groups: Astronomy

Chairs:	***Sara Seager , Jonathan Lunine***

Project Progress

The Astronomy Focus Group aims to ensure that there is a strong astronomical component to astrobiology, and also that there is a strong astrobiology component to astronomy. The Astronomy Focus Group became an official NAI focus group in September, 2003. Sara Seager (Carnegie Institution of Washington) serves as chair, and the focus group currently has approximately 60 members from 20 NAI and non−NAI institutions.

The major activity during 2003−2004 was completion of “Astrobiology and JWST,” a report to NASA. In this report the focus group addressed the question of how to maximize the astrobiology science return from NASA's James Webb Space Telescope (JWST) by the addition or optimization of current capabilities. JWST is an optical−infrared telescope with a 6.5−m mirror now under development for launch in 2011. The Astronomy Focus Group made several specific recommendations, including: implementation of moving target software (to measure the deuterium−to−hydrogen ratio in Solar System comets); inclusion of a capability to observe bright stars with high cadence (to study transiting extrasolar planet atmospheres); and incorporation of a set of filters for the near−infrared camera, which also hosts a coronagraph (to study protoplanetary disk chemistry). Meeting these recommendations is critical if the mission is to serve the interests of astrobiology, because JWST was initially designed for cosmology ¾ observing very faint, distant galaxies. The report was co−chaired by Seager and Jonathan Lunine (University of Arizona), and participants included those from a number of different NAI teams as well as non−NAI members.

Plans of the Astronomy Focus Group for the near future include two workshops similar to the one that spawned the Astrobiology and JWST report: one on astrobiology and the Atacama Large Millimeter Array (ALMA) and one on astrobiology and a 20− to 30−m ground−based optical telescope. The Astronomy Focus Group plans three additional workshops on processing material through disks to planets, astronomy biomarkers, and a definition of astronomy−related astrobiology.